



ROUX ASSOCIATES, INC.
Environmental Consulting
& Management

209 Shafter Street
Islandia, NY 11749
Telephone: (631) 232-2600
Fax: (631) 232-9898

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Page 1 of 6

WELL CONSTRUCTION LOG

WELL NO. CFMW-056a	LATITUDE Not Measured	LONGITUDE Not Measured
PROJECT NO./NAME 2476.0001Y / CFAC RI/FS Phase 1	LOCATION 2000 Aluminum Drive Columbia Falls, Montana	
APPROVED BY A. Muscietta	LOGGED BY A. Hoffmann	
DRILLING CONTRACTOR/DRILLER Cascade Drilling / Carlos Anguiano	GEOGRAPHIC AREA Aluminum City	
DRILL BIT DIAMETER/TYPE 6-in. / Sonic Bit	BOREHOLE DIAMETER 6-inches	DRILLING EQUIPMENT/METHOD Truck Mounted / Rotasonic
CASING MAT./DIA. SCH 40 PVC / 2-inch	SCREEN: TYPE Slotted	SAMPLING METHOD Continuous Core
		START-FINISH DATE 7/15/16-7/19/16
		MAT. SCH 40 PVC TOTAL LENGTH 10.0ft DIA. 2-inch SLOT SIZE 20-Slot

Depth, feet	Stick Up - 2 ft	J-Plug	Graphic Log	Visual Description	Blow Counts per 6"	PID Values (ppm)	REMARKS
5	Cement	Concrete		Dark brown, fine to coarse SAND, little Silt and Organics, trace fine gravel; dry. Brown, fine to coarse SAND, little Silt, trace organics and fine gravel; dry. Brown, fine to coarse SAND and GRAVEL (rounded), little Cobble; dry.		0.0	6 ft recovery
10				Brown, fine to coarse SAND and fine to coarse GRAVEL (rounded), some Cobble; dry.		0.1	Sample CFMW-056a-SO-0-0.5 and CFMW-056a-SO-0-0.5-Pb collected
15						0.0	Sample CFMW-056a-SO-0.5-2 collected
20						0.0	10 ft recovery
25						0.0	Sample CFMW-056a-SO-10-12 collected
30						0.0	8 ft recovery
35						0.0	
40						0.0	
45						0.0	Sample CFMW-056a-SO-37-42 collected
50						0.0	8 ft recovery

BORING/FEET CFAC BORING LOGS.GPJ ROUX.GDT 8/12/16

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APPROVED BY A.Muscietta		LOGGED BY A. Hoffmann		Columbia Falls, Montana																							
Depth, feet	Graphic Log	Visual Description (continued)		Blow Counts per 6"	PID Values (ppm)	REMARKS																					
.....					0.0	.....																				
.....							Grout	Brown, fine to medium SAND, trace silt; wet (loose). (continued)																		
.....										Brown, fine SAND, some Silt; wet (loose).	0.0	55															
55													Brown, fine to medium SAND, trace silt; wet (loose).	15 ft recovery												
.....																Brown to light brown, fine SAND and SILT, trace clay; wet (loose).										
.....																		60								
60																				0.0	65					
.....																							70			
65																									15 ft recovery	75
.....																											
70	.....	85																								
.....			Light gray to brown, fine SAND and SILT, trace clay and medium gravel; moist (soft).	0.0	90																						
75						15 ft recovery	95																			
80									Light brown to light gray, fine SAND and SILT, some medium to coarse Gravel, little Clay; wet (medium stiff).	0.0	100																
.....												12 ft recovery	105													
85															Light brown to light gray, fine SAND and SILT, some Clay and medium Gravel, trace cobble; moist to wet (stiff).	0.0										
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BORING/FEET CFAC BORING LOGS.GPJ ROUX.GDT 8/12/16

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CFMW-056a	Not Measured	Not Measured
PROJECT NO./NAME	LOCATION	
2476.0001Y / CFAC RI/FS Phase 1	2000 Aluminum Drive	
APPROVED BY	LOGGED BY	
A. Muscietta	A. Hoffmann	Columbia Falls, Montana

Depth, feet	Graphic Log	Visual Description (continued)	Blow Counts per 6"	PID Values (ppm)	REMARKS
110		Light brown to light gray, fine SAND and SILT, some Clay and medium Gravel, trace cobble; dry (stiff). (continued)		0.0	
115					8 ft recovery
120				0.0	
125	Bentonite Plug	Orange-brown to tan, fine to coarse SAND, some Silt and fine to coarse Gravel, little Clay; moist to wet (medium dense).		0.0	11 ft recovery
130	#2 Sand 10' of 20-Slot Schedule 40 PVC Screen				17 ft recovery
135	Well Plug				
140				0.0	
145	Grout				
150					17 ft recovery
155				0.0	
160		Orange-brown to tan, fine to coarse SAND, some Silt and fine to coarse Gravel, little Clay; moist to dry (dense).			

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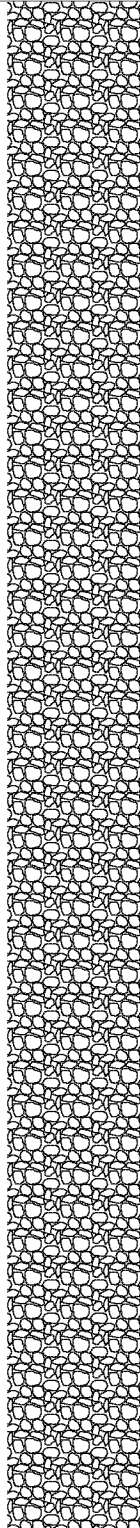
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APPROVED BY A. Muscietta	LOGGED BY A. Hoffmann	

Depth, feet	Graphic Log	Visual Description (continued)	Blow Counts per 6"	PID Values (ppm)	REMARKS	
165				0.0	165	
.....					
.....		Orange-brown to tan, fine to coarse SAND, some Silt and fine to coarse Gravel, little Clay; moist (dense).			15 ft recovery	.....
.....					
170				0.0	170	
.....					
.....					
175						175
.....					
.....					
180						180
.....					
.....					
185						185
.....					
.....					
190					0.0	190
.....					
.....					
195						195
.....					
.....					
200					0.0	200
.....					
.....					
205			Orange-brown to tan, fine to coarse SAND, some Silt and fine to coarse Gravel and Cobble, little Clay; moist (dense).			205
.....					
.....					
210		Orange-brown to tan, fine to coarse SAND, some Silt and fine to coarse Gravel, little Clay and Cobble; moist to wet (medium dense).		0.0	210	
.....					
.....					
215				0.0	215	
.....					
.....					
220					220	

BORING/FEET CFAC BORING LOGS.GPJ ROUX.GDT 8/12/16

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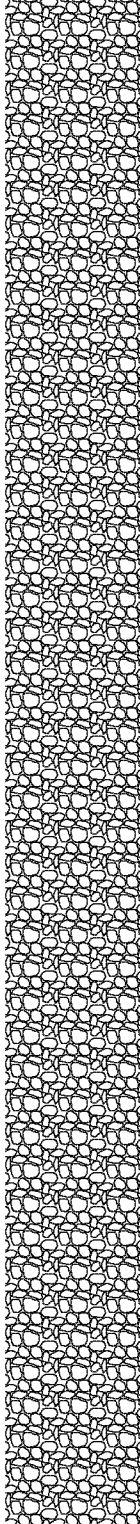
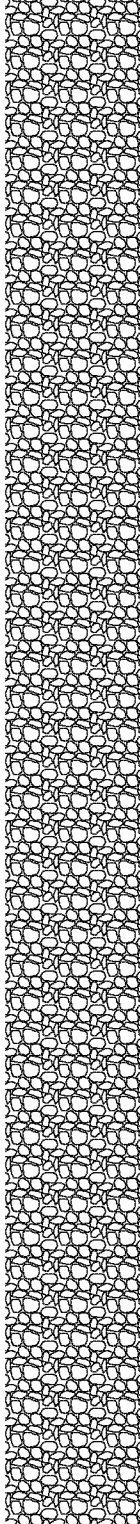
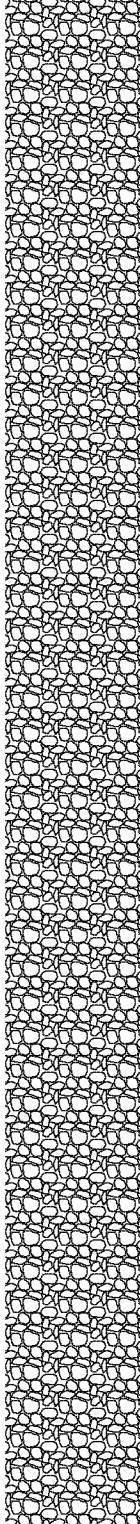
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APPROVED BY A. Muscietta	LOGGED BY A. Hoffmann	

Depth, feet	Graphic Log	Visual Description (continued)	Blow Counts per 6"	PID Values (ppm)	REMARKS
.....		Dark orange-brown to tan, fine to coarse SAND and SILT, some Clay and fine to coarse Gravel, little Cobble; dry (very stiff). (continued)		0.0	.....
<u>225</u>		Orange-brown to tan, fine to coarse SAND and SILT, some Clay and fine to coarse Gravel, little Cobble; moist (stiff).			13 ft recovery <u>225</u>
.....				
<u>230</u>				0.0	<u>230</u>
.....				
<u>235</u>					<u>235</u>
.....		Dark orange-brown, fine to coarse SAND, some Silt and fine to coarse Gravel, little Clay and Cobble; moist to wet (medium dense).			7 ft recovery
<u>240</u>				0.0	<u>240</u>
.....				
<u>245</u>					14 ft recovery <u>245</u>
.....				
<u>250</u>				0.0	<u>250</u>
.....				
<u>255</u>					<u>255</u>
.....				
<u>260</u>		Dark orange-brown, fine to coarse SAND, some Silt and fine to coarse Gravel, little Clay and Cobble; moist (dense).		0.0	7 ft recovery <u>260</u>
.....		Dark orange-brown, fine to coarse SAND and SILT, some Clay and fine to coarse Gravel, little Cobble; dry (stiff).		0.0	.....
<u>265</u>					11 ft recovery <u>265</u>
.....				0.0	.....
<u>270</u>		Dark orange-brown, fine to coarse SAND, some Silt and fine to coarse Gravel, little Clay and Cobble; moist to wet (medium dense).		0.0	<u>270</u>
.....		Brown to dark gray, fine to coarse SAND and SILT, some Clay and fine to coarse Gravel, little Cobble; dry (stiff).		0.0
<u>275</u>					<u>275</u>
.....				
.....				0.0	3 ft recovery

BORING/FEET CFAC BORING LOGS.GPJ ROUX.GDT 8/12/16

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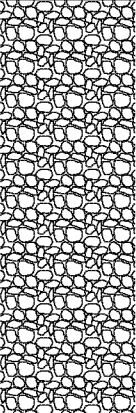
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APPROVED BY A. Muscietta		LOGGED BY A. Hoffmann			

Depth, feet	Graphic Log	Visual Description (continued)	Blow Counts per 6"	PID Values (ppm)	REMARKS
..... <u>280</u>		Brown to dark gray, fine to coarse SAND and SILT, some Clay and fine to coarse Gravel, little Cobble; moist (stiff).		0.0	.....<u>280</u>
.....					14 ft recovery
.....					
.....					
<u>285</u> .....					.....<u>285</u>
.....					
<u>290</u> .....					.....<u>290</u>
.....					End of boring at 294 ft bls

BORING/FEET CFAC BORING LOGS.GPJ ROUX.GDT 8/12/16

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